EAST BAY
MUNICIPAL UTILITY DISTRICT

DAVID R. WILLIAMS
DIRECTOR OF WASTEWATER

March 3, 2003

Ms. Loretta K. Barsamian, Executive Director
San Francisco Bay - Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Dear Ms. Barsamian:

Re: Final Report on Special Study of Bis(2-ethylhexyl) Phthalate in EBMUD's Main Wastewater Treatment Plant Effluent

Enclosed are the results of East Bay Municipal Utility District's (EBMUD) special study on samples collected for bis(2-ethylhexyl) phthalate analysis from its Main Wastewater Treatment Plant (WWTP) final effluent to determine if its discharge exceeds the water quality objective (WQO). The purpose of this study was to assess whether historical WWTP effluent data were inappropriately subjected to the requirements of State Implementation Plan (SIP) Reasonable Potential Analysis (RPA), consequently resulting in an NPDES permit limit, in light of additional information suggesting that past results may not have accurately characterized EBMUD's final effluent.

Background

In developing its 2001 NPDES permit, EBMUD submitted data to the Regional Water Quality Control Board (RWQCB) that included results for bis(2-ethylhexyl) phthalate that exceeded the WQO of 5.9 µg/L. Based upon these data, the RWQCB concluded that EBMUD had reasonable potential (RP) to exceed the bis(2-ethylhexyl) phthalate WQO and included an interim limit of 102 µg/L in the 2001 permit, with a final water quality based effluent limit (WQBEL) set at the WQO. In response to a District's appeal to the State Water Resources Control Board (SWRCB) to reconsider the RPA for bis(2-ethylhexyl) phthalate based upon questionable data used for the RP determination, the SWRCB remanded to the RWQCB that they consider any new information EBMUD might provide regarding bis(2-ethylhexyl) phthalate data quality concerns.

In a follow-up meeting on October 7, 2002 with RWQCB and EBMUD staff, EBMUD proposed to conduct a special study to assess the validity of the RWQCB's RP decision on bis(2-ethylhexyl) phthalate in light of sample handling and analysis concerns discussed at the meeting. Following is a brief description of the bis(2-ethylhexyl) phthalate study and the results.

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Study Design

The "Bis(2-ethylhexyl) Phthalate Special Study" used the approach recommended by EPA in its guidance manual, EPA Guidance for the Data Quality Objectives Process; EPA QA/G4, EPA/600/R-96/055, August 2000. Following this guidance, a committee of technical and operational staff was assembled to design, implement, and assess the results of the study. The data quality objectives (DQO) for bis(2-ethylhexyl) phthalate were established and documented [see Attachment I]. The EPA process incorporates seven steps that cover the following essential elements:

1) Project Logistics, Team and Schedule
2) Project Goals (i.e. "Is there reasonable potential for the Main WWTP effluent to exceed the WQO for bis(2-ethylhexyl) phthalate?").
3) Decision Inputs (sampling and analytical methods)
4) Boundaries of the Study
5) Decision Rules (i.e. "If this, then that")
6) Tolerance Limits on Decision Errors
7) Optimize the Design (i.e. evaluation and optimization based on interim data)

Historical data for bis(2-ethylhexyl) phthalate were reviewed and evaluated as part of this process. These data indicated that composite samples, sample handling in the field and laboratory, and laboratory analysis (by virtue of method blank information) contributed to false positives. Based upon this working hypothesis, a sampling SOP was developed for bis(2-ethylhexyl) phthalate [see Attachment II], and EPA Method 625, as detailed in Laboratory SOP #344 [see Attachment III] was used as the analytical method.

The sampling plan required that a minimum of ten samples be collected in triplicate over a 5-week period, at 2 samples per week, with at least one sample collected on each day of week. Data validation criteria [see Attachment IV] were developed prior to sample collection and analysis as part of the DQO process, and used in the evaluation of data generated by this Study. For example, sample results for the sample of record and its replicates were evaluated for precision based on the relative percent difference (RPD) among the samples' detectable concentrations. If the RPD exceeded the validation criteria, a new set of samples was collected for evaluation. Finally, a sampling schedule and Laboratory Service Request (LSR) was developed [see Attachment V] prior to the Special Study start-up. An LSR is used by the Laboratory to insure that analytical requirements are clearly documented for bench analysts and other technical staff.

Results

Summary table of the sample and QA/QC results, statistical analyses and data qualifiers for the Study samples is provided [see Attachment VI]. Results for this Study show that:

- All results that met the DQOs were less than the WQO of **5.9 µg/L**

- The maximum value for the 36 results meeting DQOs (including the two replicate samples and the sample of record for each triplicate sample set) was: **E 4.0 µg/L**
- The minimum value for the 36 results meeting DQOs was: **E 0.56 µg/L**
- The mean of all values meeting DQOs was: **E 1.3 µg/L**

The "E" qualifier used with these data indicates the analytical results are considered estimates because they fall outside the analytical calibration range (i.e. in this case below the lowest calibration point on the calibration curve), and would be reported as detected not quantified (DNQ) for SIP purposes.

Based on these results and the historical data presented at the initial meeting with RWQCB staff following the SWRCB remand, the District does not believe there is reasonable potential for the Main WWTP effluent to exceed the WQO for bis(2-ethylhexyl) phthalate. EBMUD therefore requests that the RWQCB amend its NPDES permit to remove this compound from among its permitted constituents. EBMUD would like to discuss the data and conclusions resulting from the "Bis(2-ethylhexyl) Phthalate Special Study", and will be contacting RWQCB staff within two weeks to set a time and date for a meeting.

Please do not hesitate to contact me if you have any questions regarding the study plan, the protocols used, the results produced, and/or the conclusions reached.

Sincerely,

David R. Williams

DAVID R. WILLIAMS
Director of Wastewater

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Attachments

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